TOSOTT-24S0001

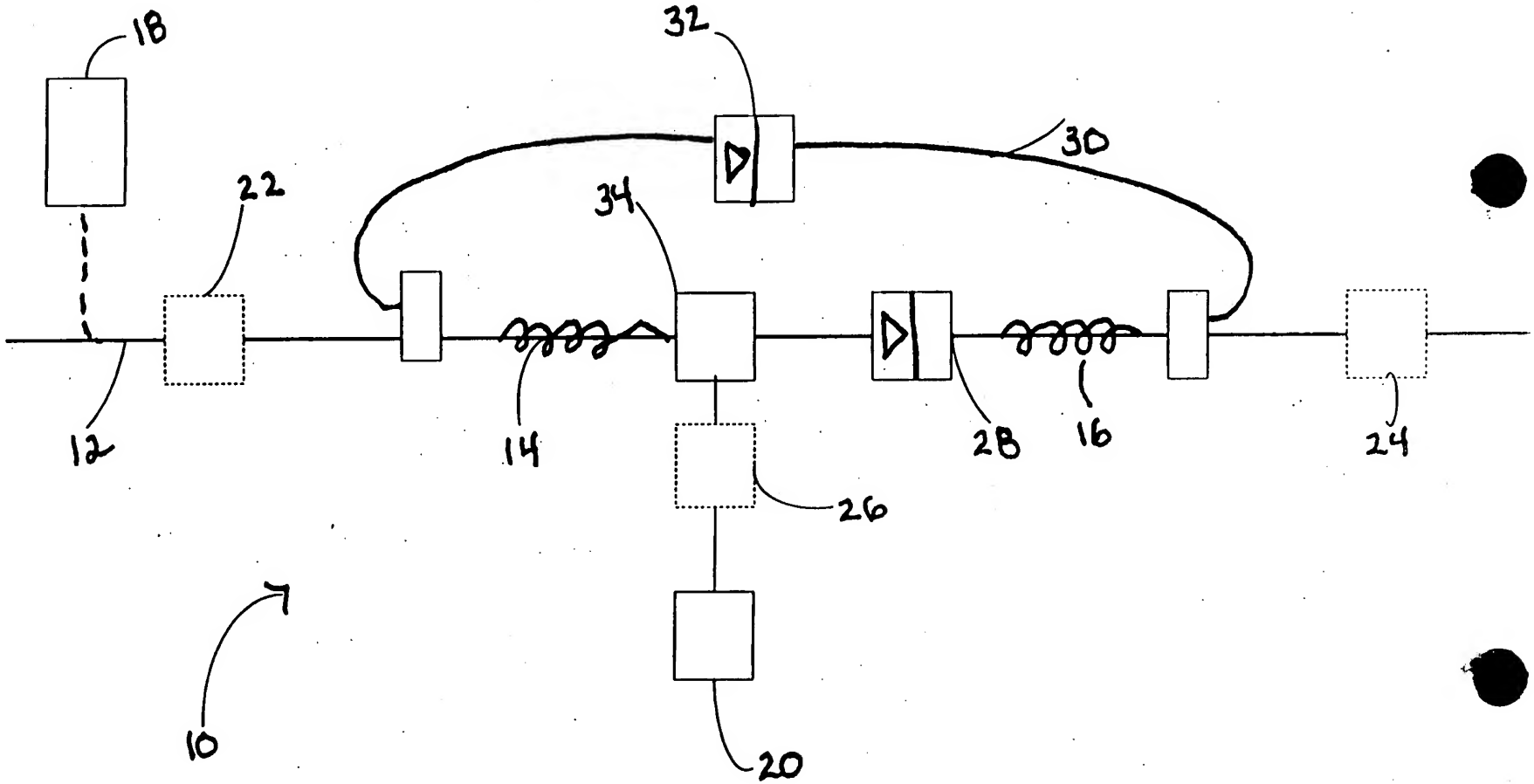


FIG. 1

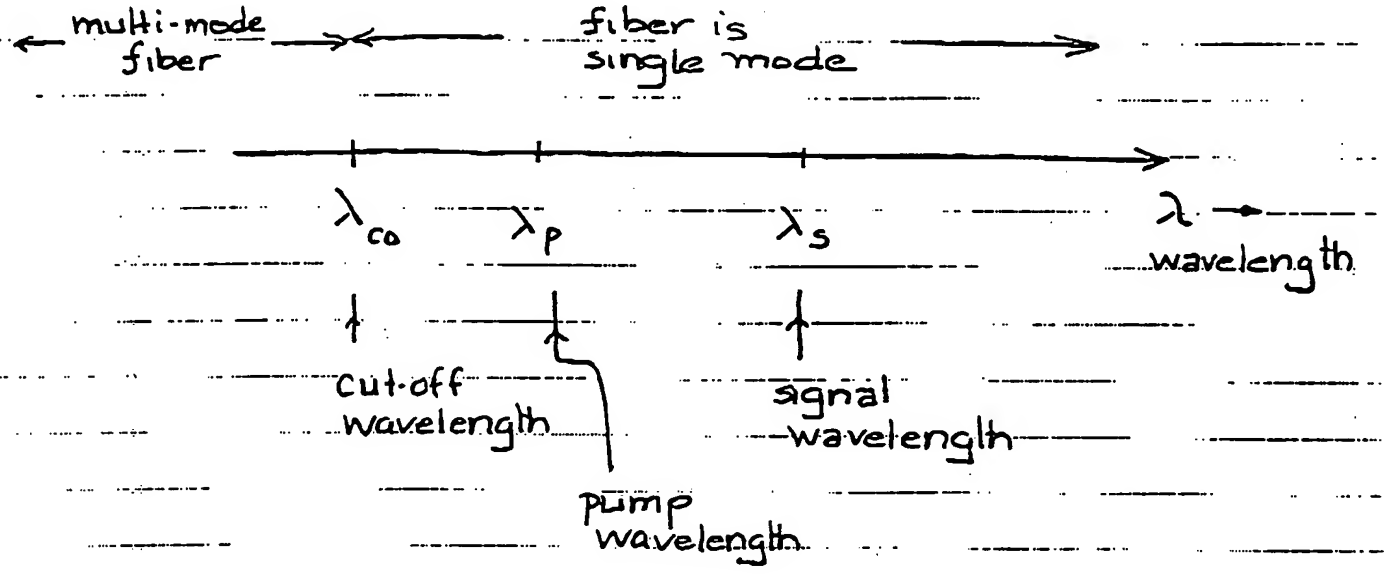

multi-mode fiber
fiber is single mode
λ_{co}
λ_p
λ_s
λ
wavelength
cut-off wavelength
signal wavelength
pump wavelength

FIG. 2

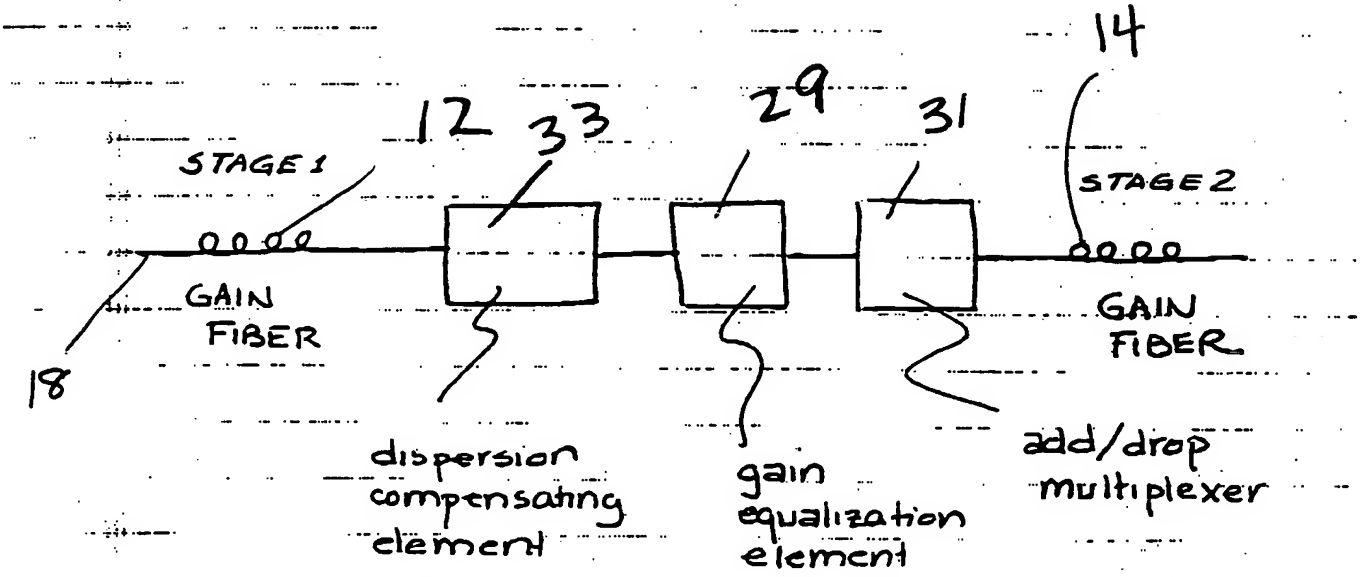

14
12
33
29
31
STAGE 1
STAGE 2
GAIN FIBER
GAIN FIBER
18
dispersion compensating element
gain equalization element
add/drop multiplexer

FIG. 3

EP 0 915 549 A2

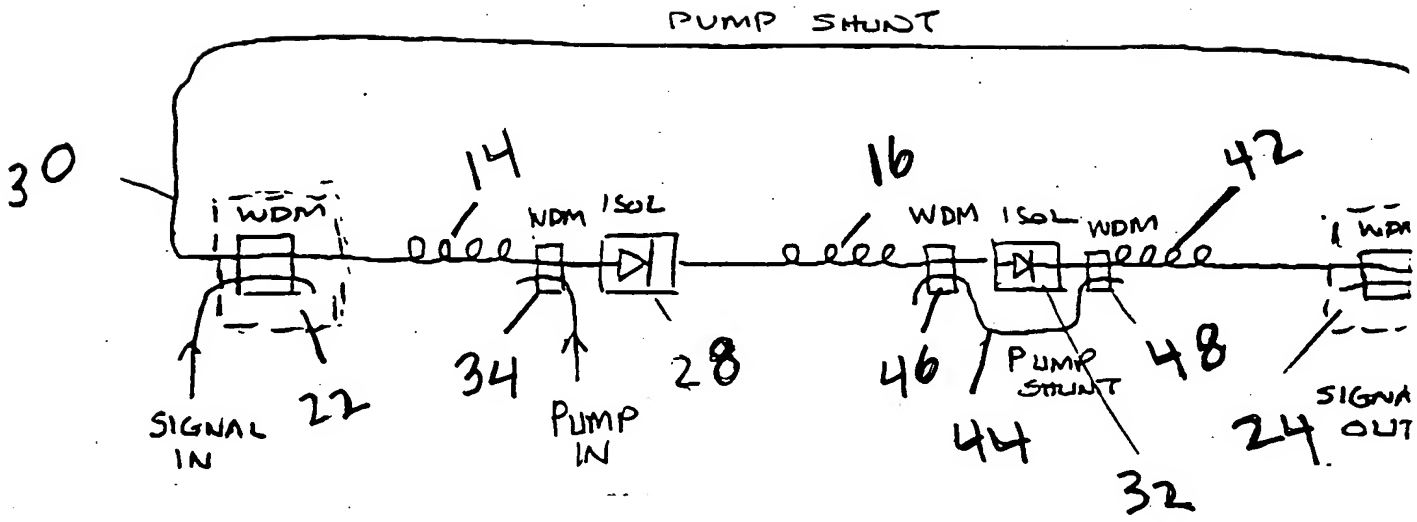


FIG. 4 (continued)

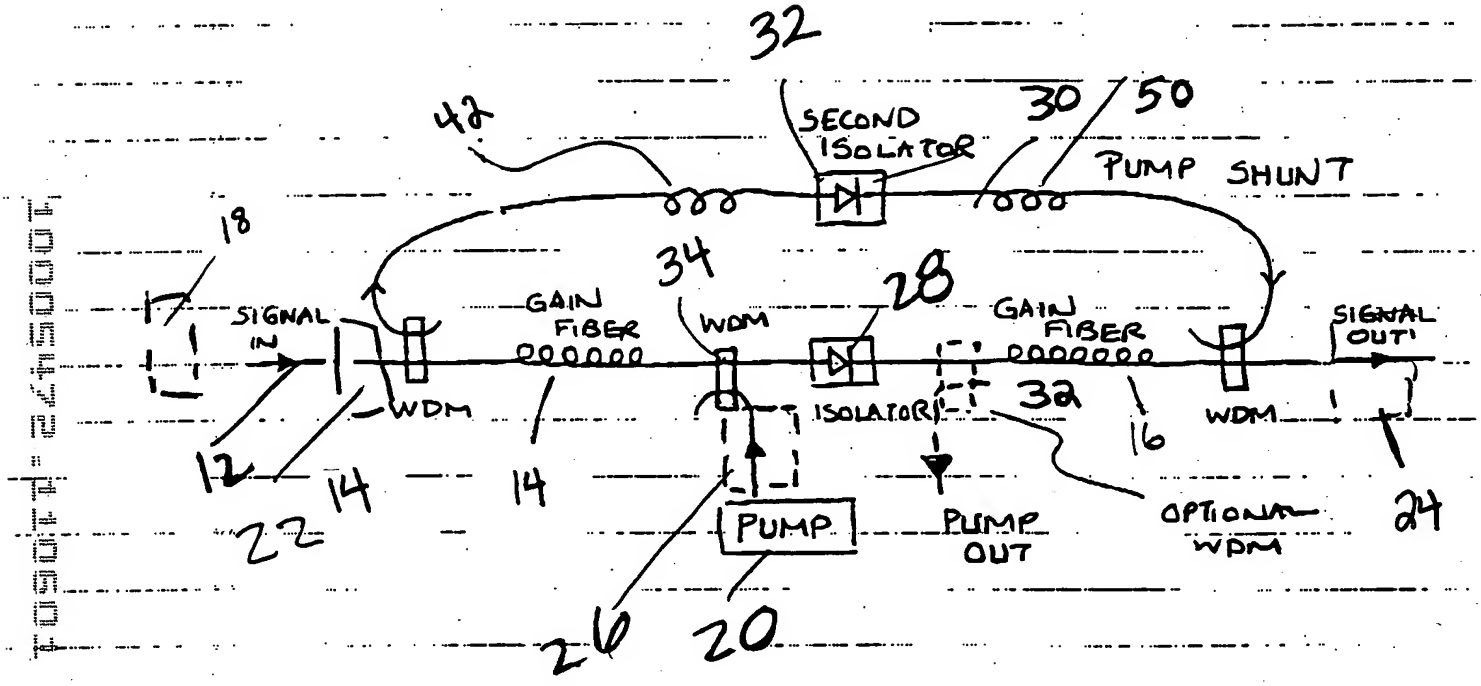

32
42
SECOND ISOLATOR
30
50
PUMP SHUNT
18
34
28
SIGNAL IN
GAIN FIBER
WDM
GAIN FIBER
SIGNAL OUT
WDM
ISOLATOR
32
16
WDM
12
14
14
22
PUMP
PUMP OUT
OPTIONAL WDM
24
26
20

FIG. 5

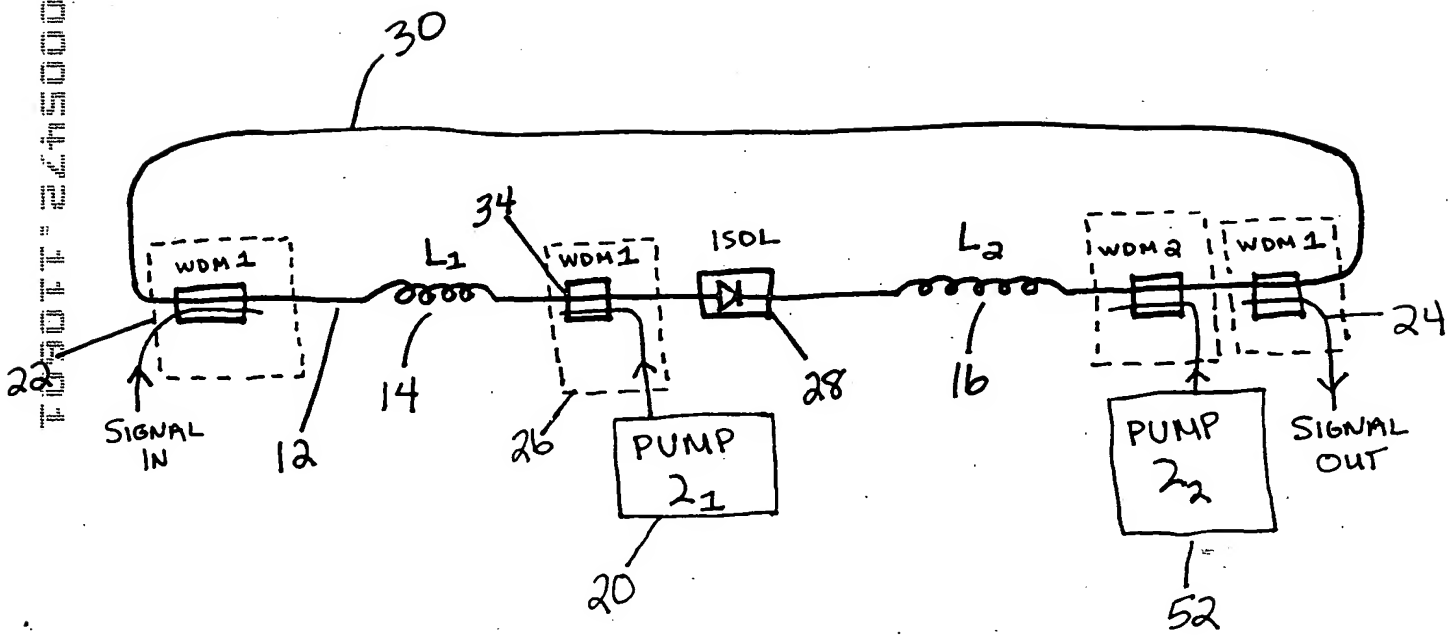

30
34
WDM 1
L_1
WDM 1
ISOL
L_2
WDM 2
WDM 1
24
22
SIGNAL IN
12
14
26
PUMP 2_1
28
16
PUMP 2_2
SIGNAL OUT
20
52

FIG. 6

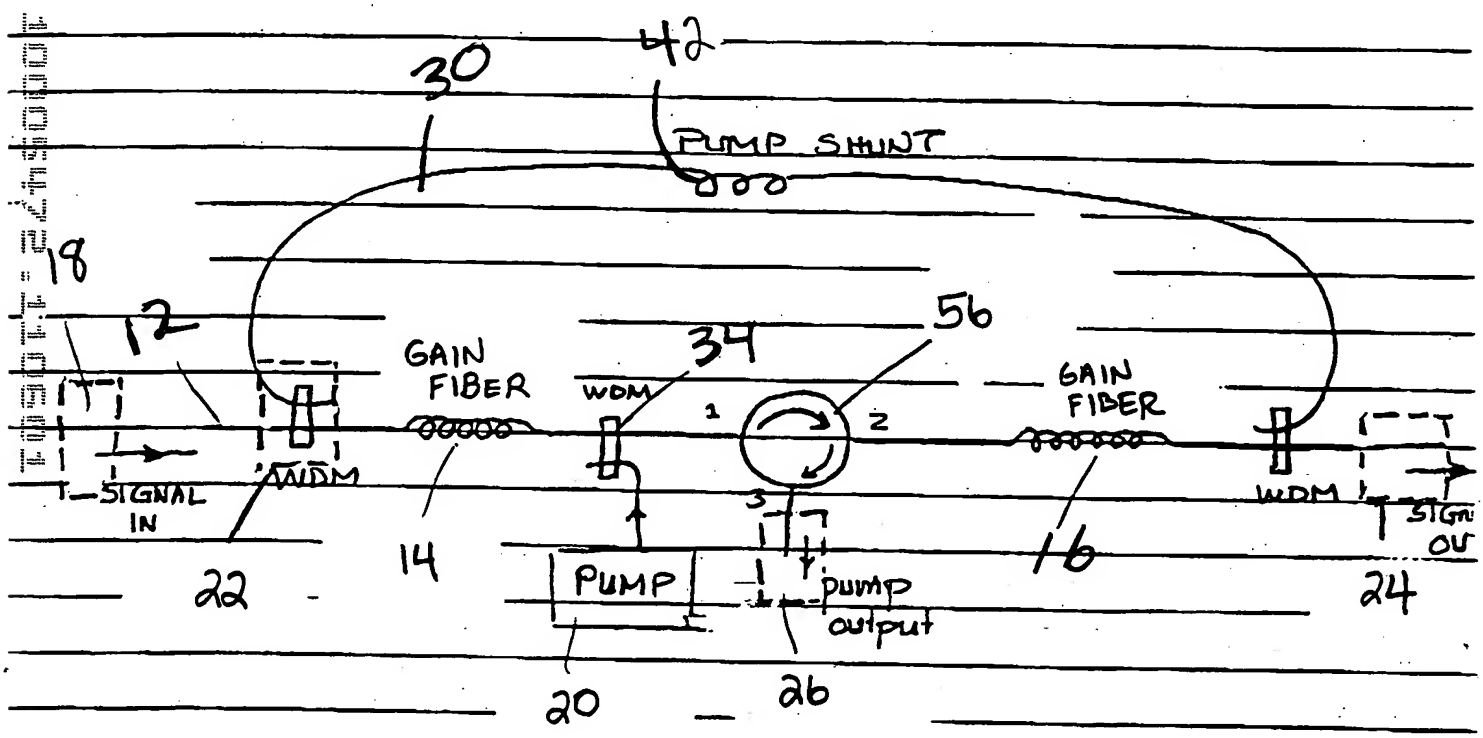

30
42
PUMP SHUNT
18
12
56
34
GAIN FIBER
WDM
1
2
GAIN FIBER
SIGNAL IN
WDM
WDM
SIGN OU
3
14
16
22
PUMP
pump output
24
20
26

FIG. 7

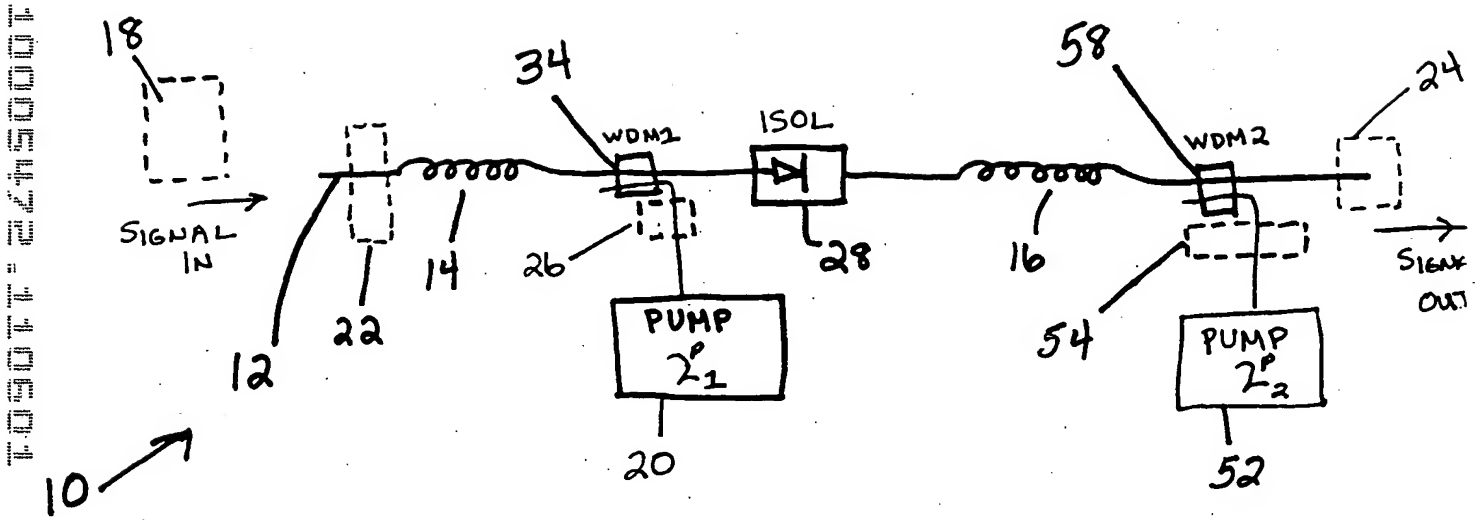

18
SIGNAL IN
12
22
14
34
WDM1
26
PUMP 2^{P}_{1}
20
ISOL
28
16
58
WDM2
54
PUMP 2^{P}_{2}
52
24
SIGNAL OUT
10

FIG. 8

FIG. 8b

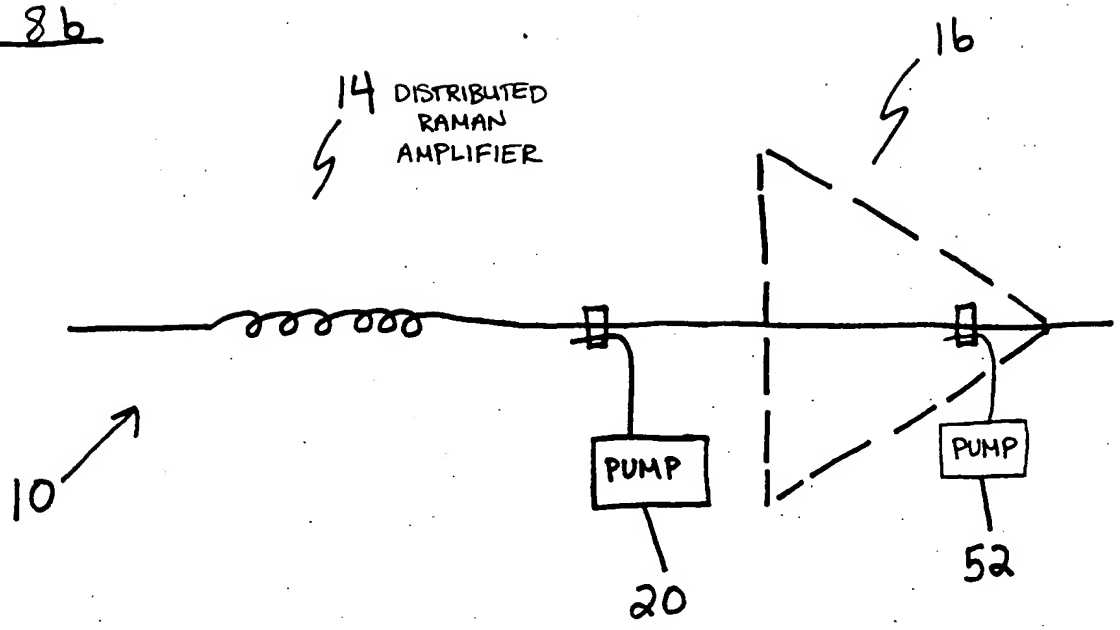
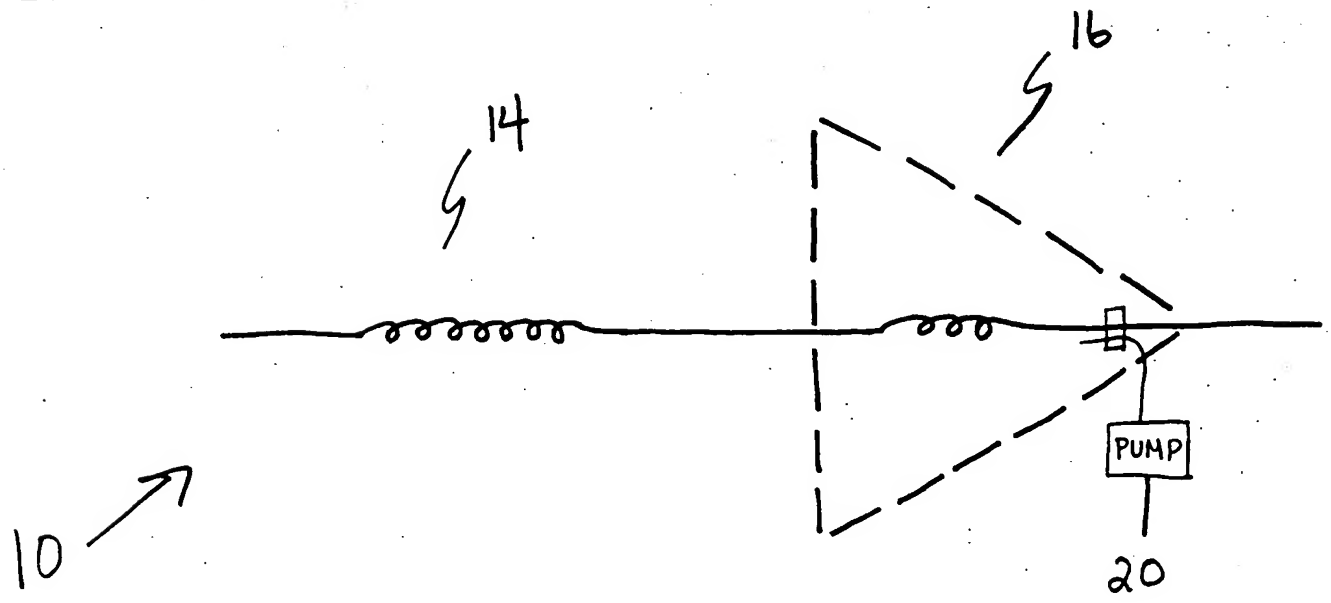

14
DISTRIBUTED
RAMAN
AMPLIFIER
16
10
PUMP
PUMP
20
52

FIG. 8c


16
14
10
PUMP
20

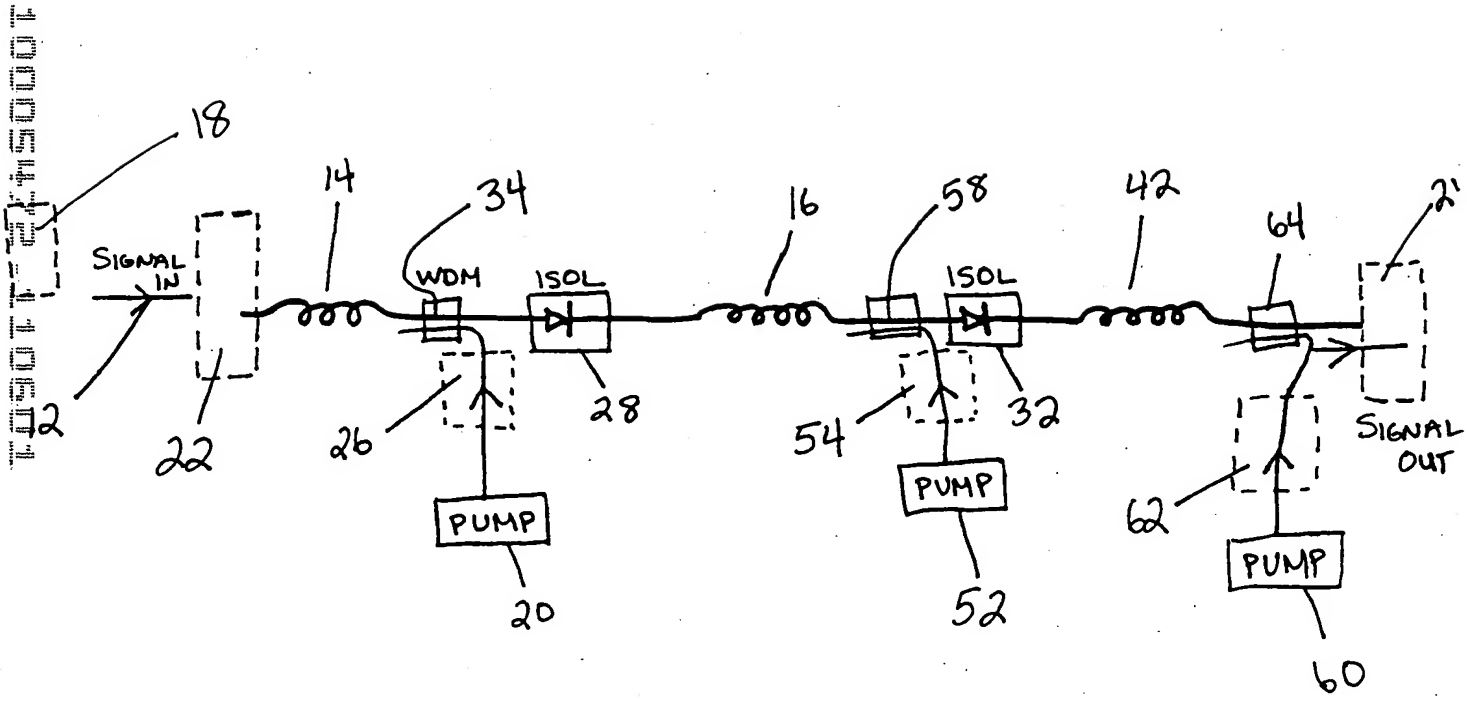

18
SIGNAL IN
12
22
14
34
WDM
ISOL
26
28
PUMP
20
16
58
ISOL
54
32
PUMP
52
42
64
2'
SIGNAL OUT
62
PUMP
60

FIG. 9

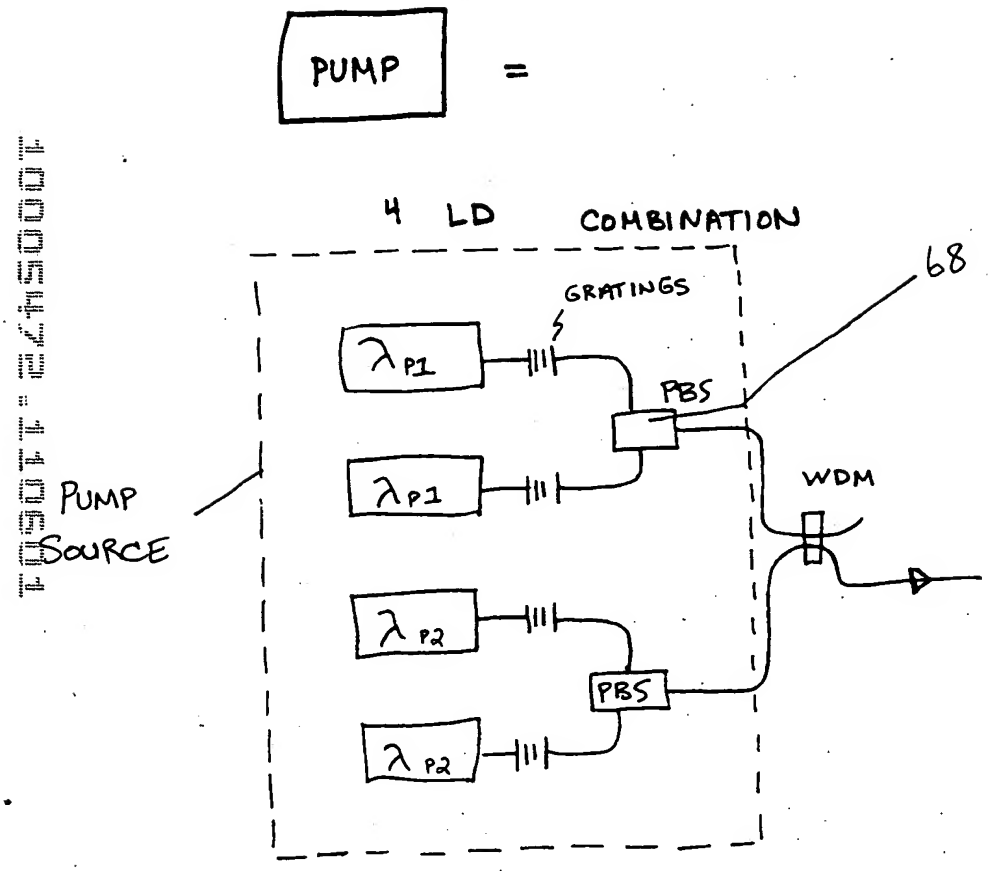

PUMP
=
4 LD COMBINATION
GRATINGS
68
λ_{P1}
λ_{P1}
PBS
WDM
PUMP SOURCE
λ_{P2}
λ_{P2}
PBS

FIG. 1D

8 LD COMBINATION

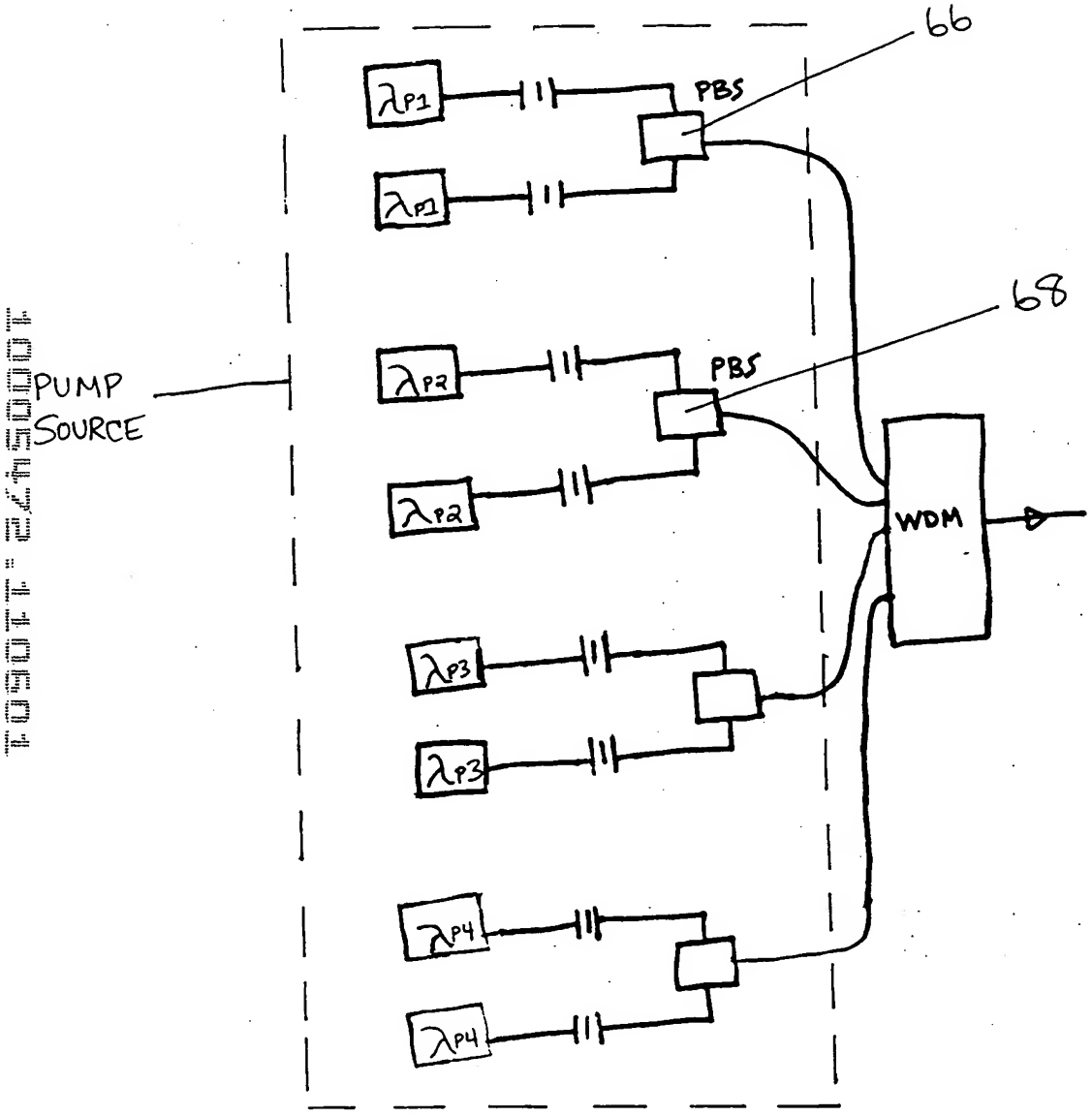


FIG. 11

T0S0015-27450001

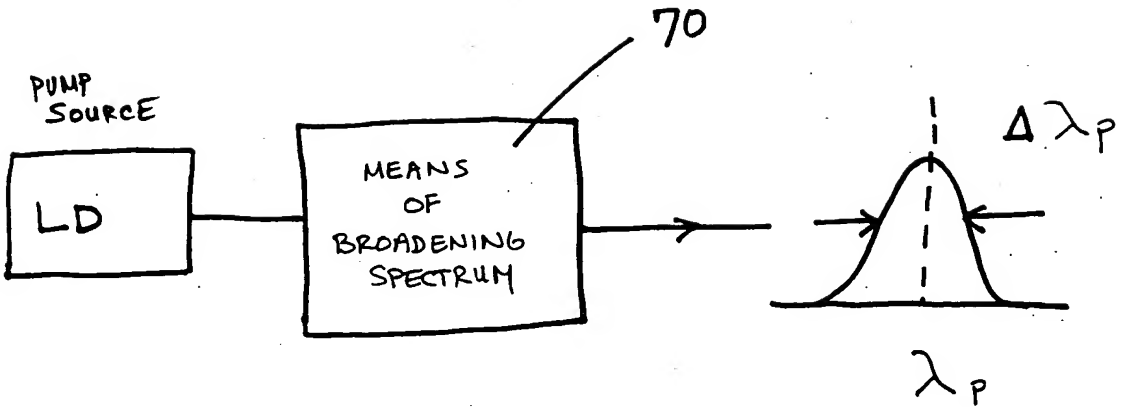


FIG. 12

T09077 "2749001"

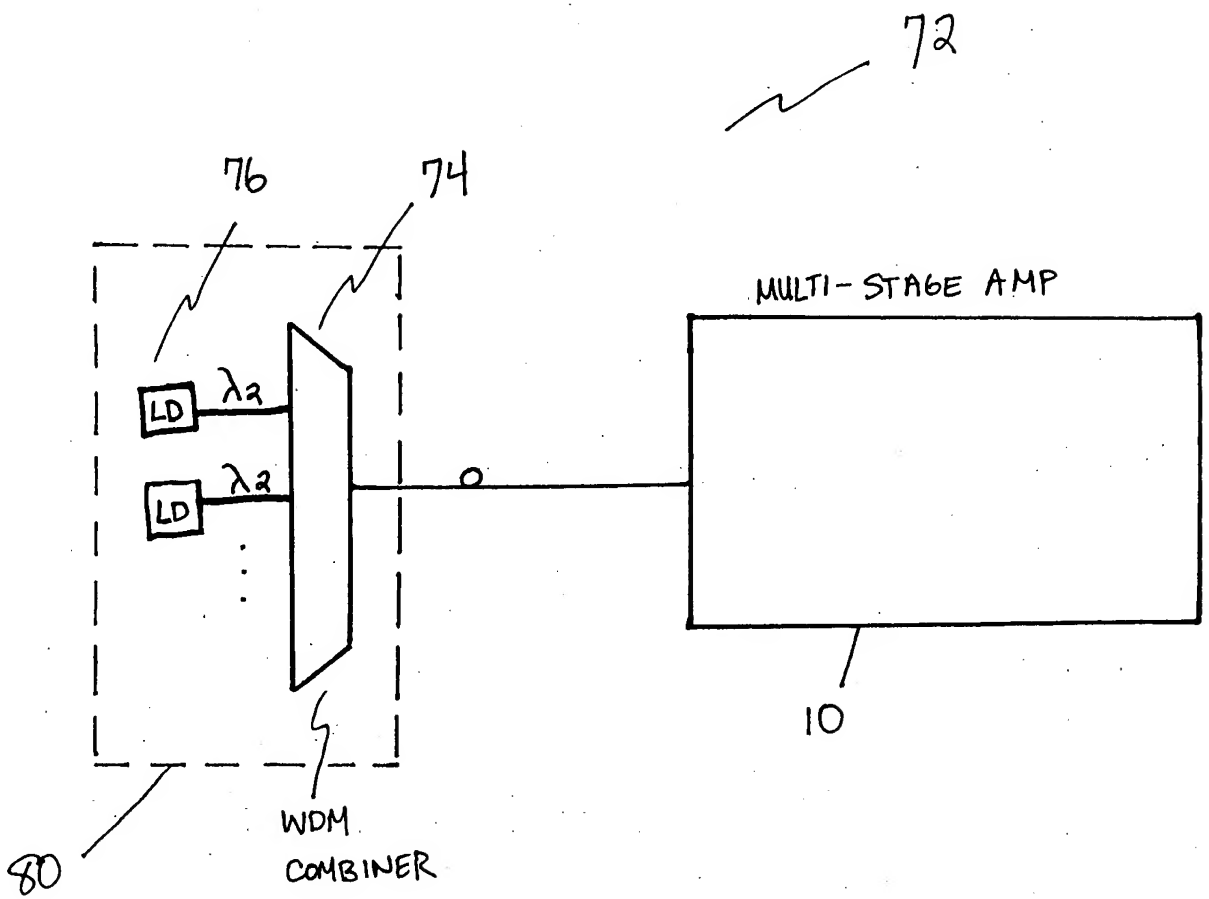


FIG. 13

T090FF-27450007

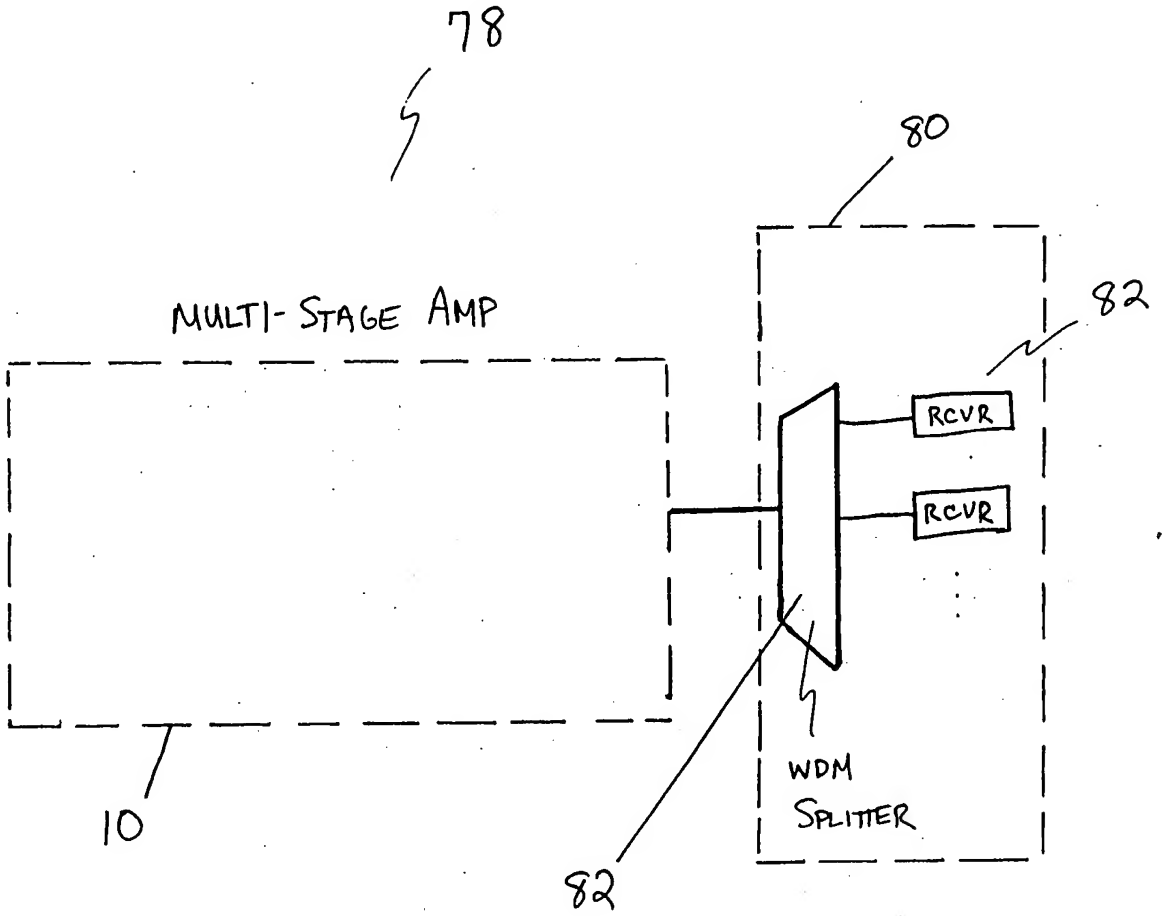


FIG. 14

T0907T 2ANSOOOT

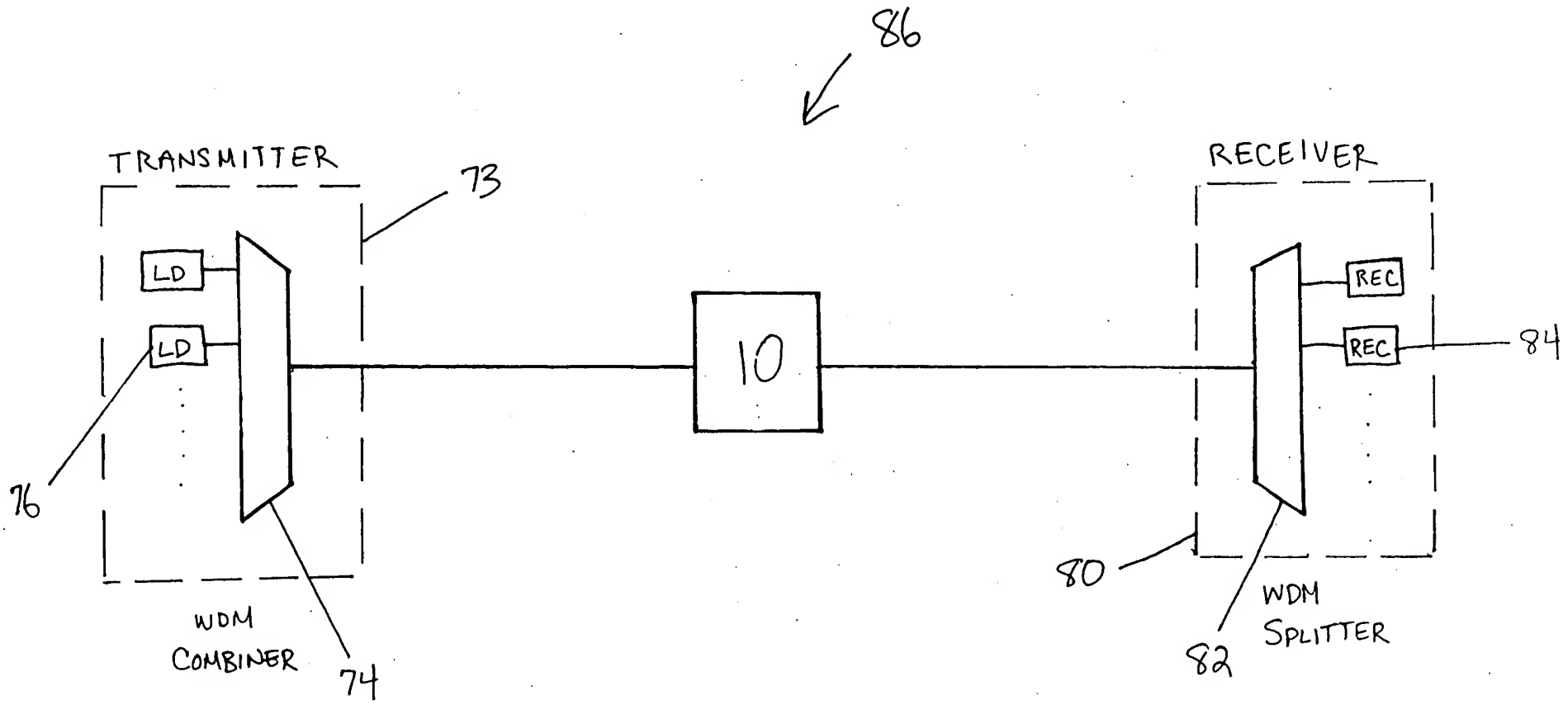


FIG. 15

TOSOFT: 2/4/5000T

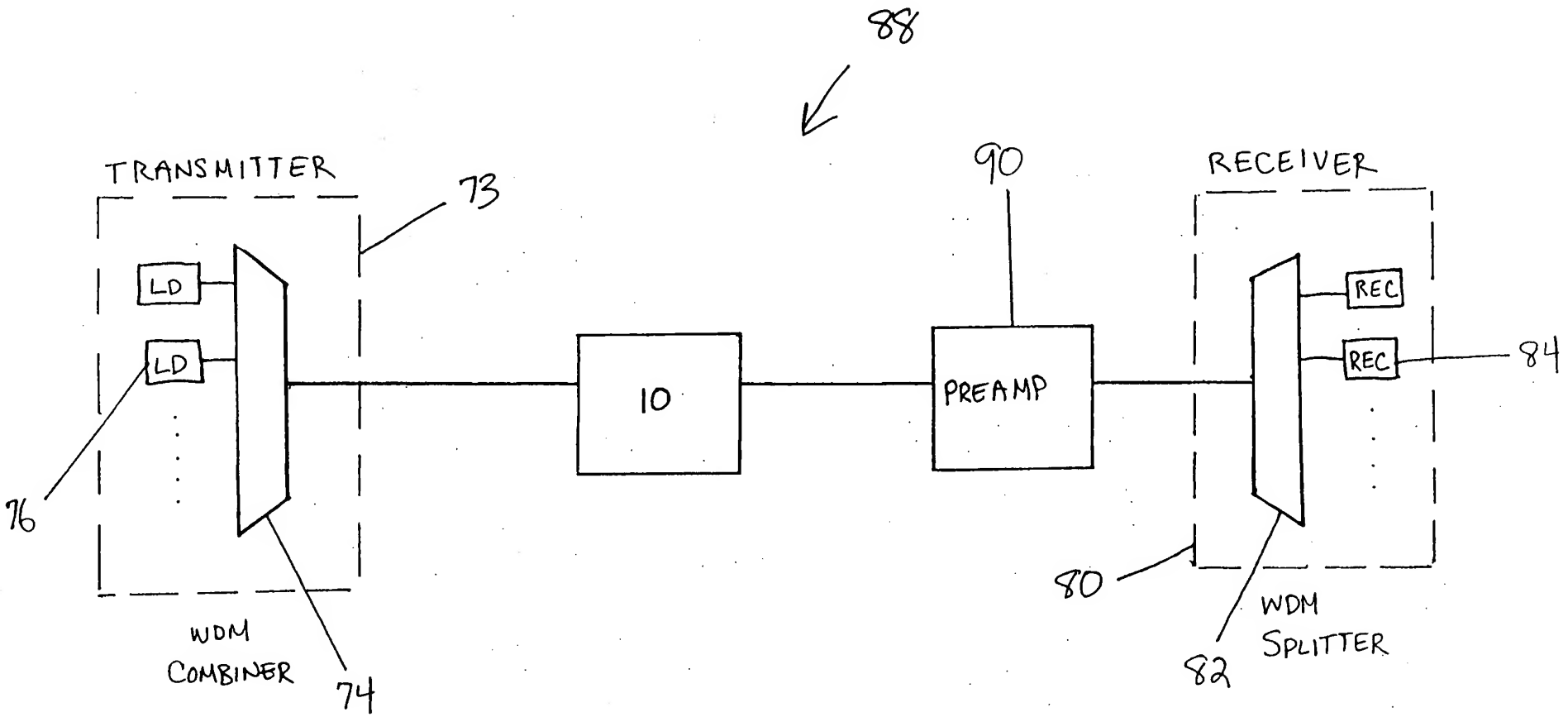


FIG. 16

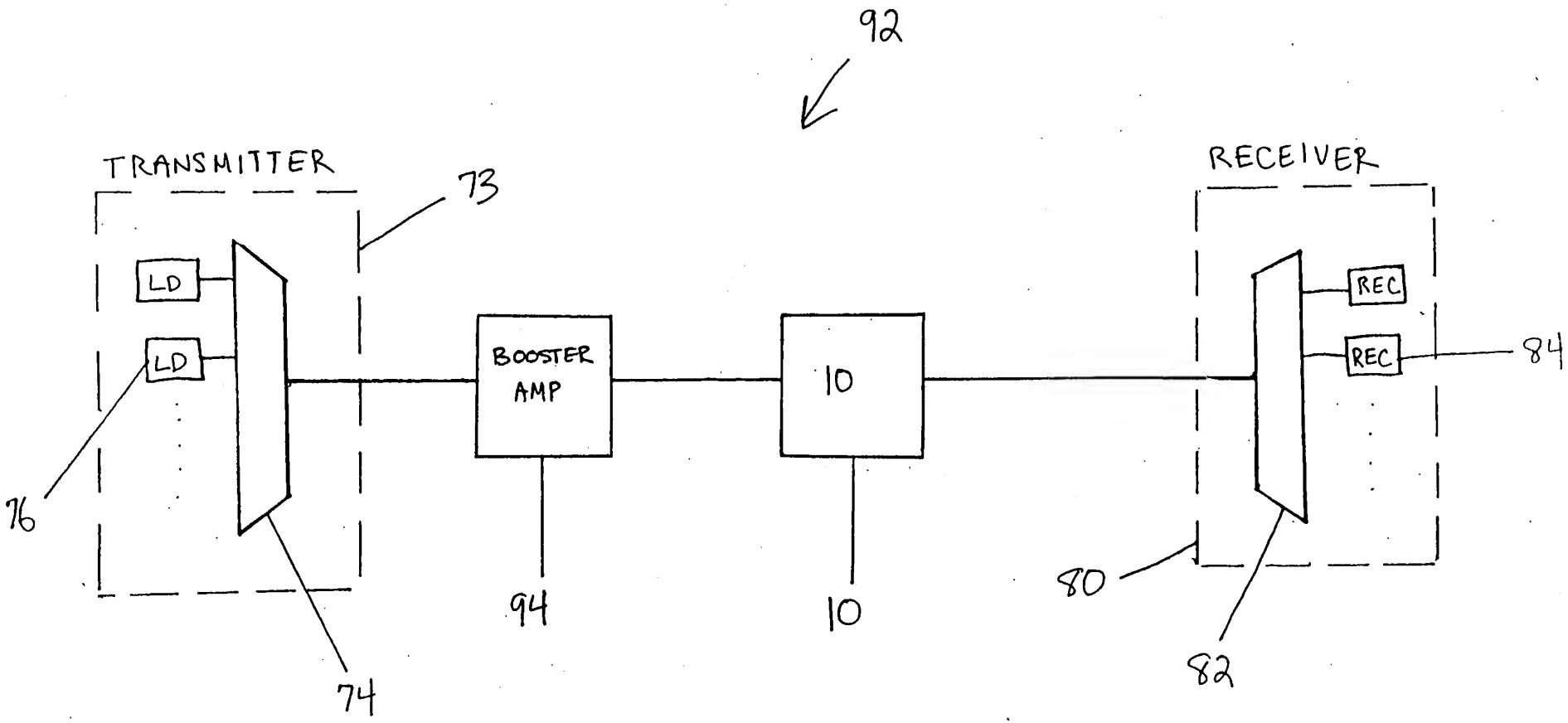

92
TRANSMITTER
73
LD
LD
76
74
BOOSTER AMP
94
10
10
RECEIVER
REC
REC
84
80
82

FIG. 17

T090TT 2Cn5000T

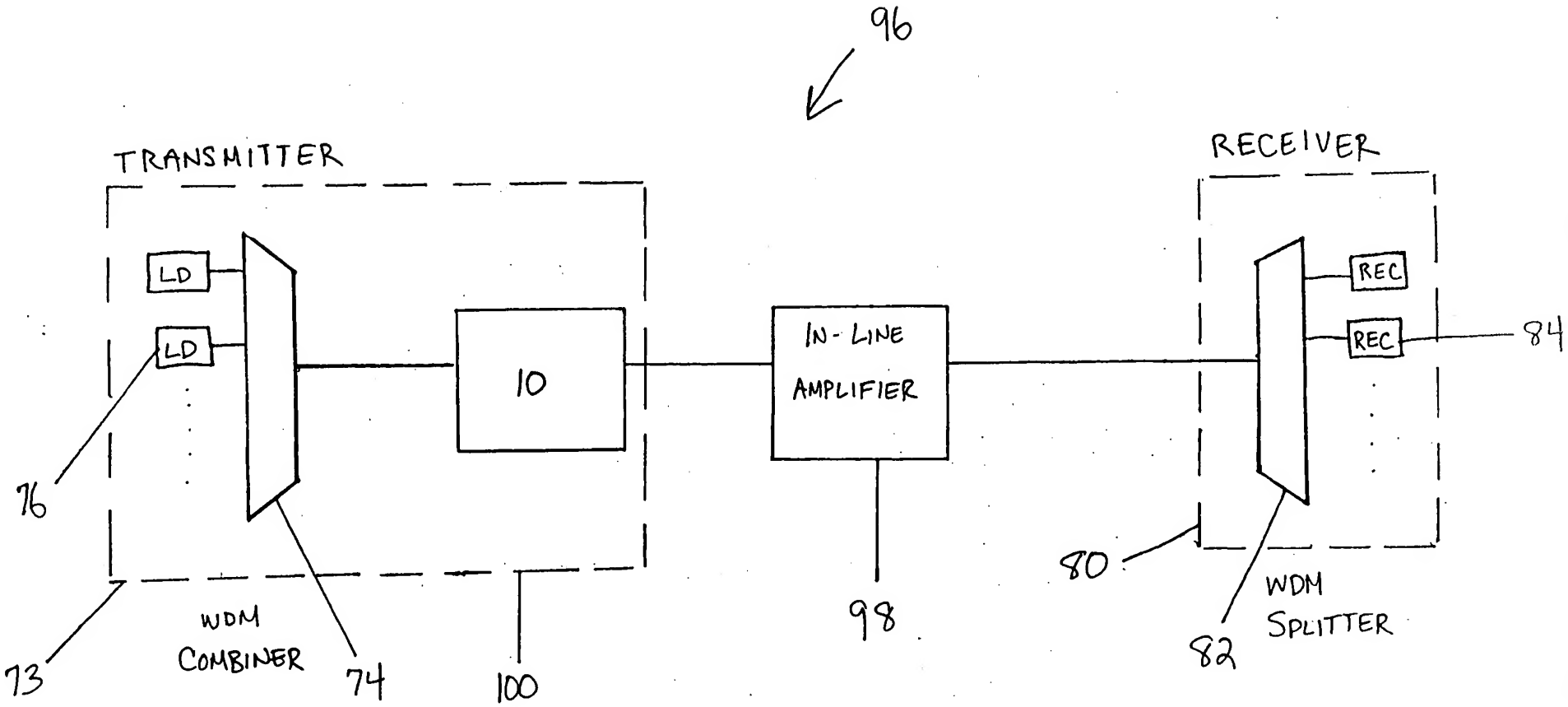


FIG. 18

T09OTT: 24150007

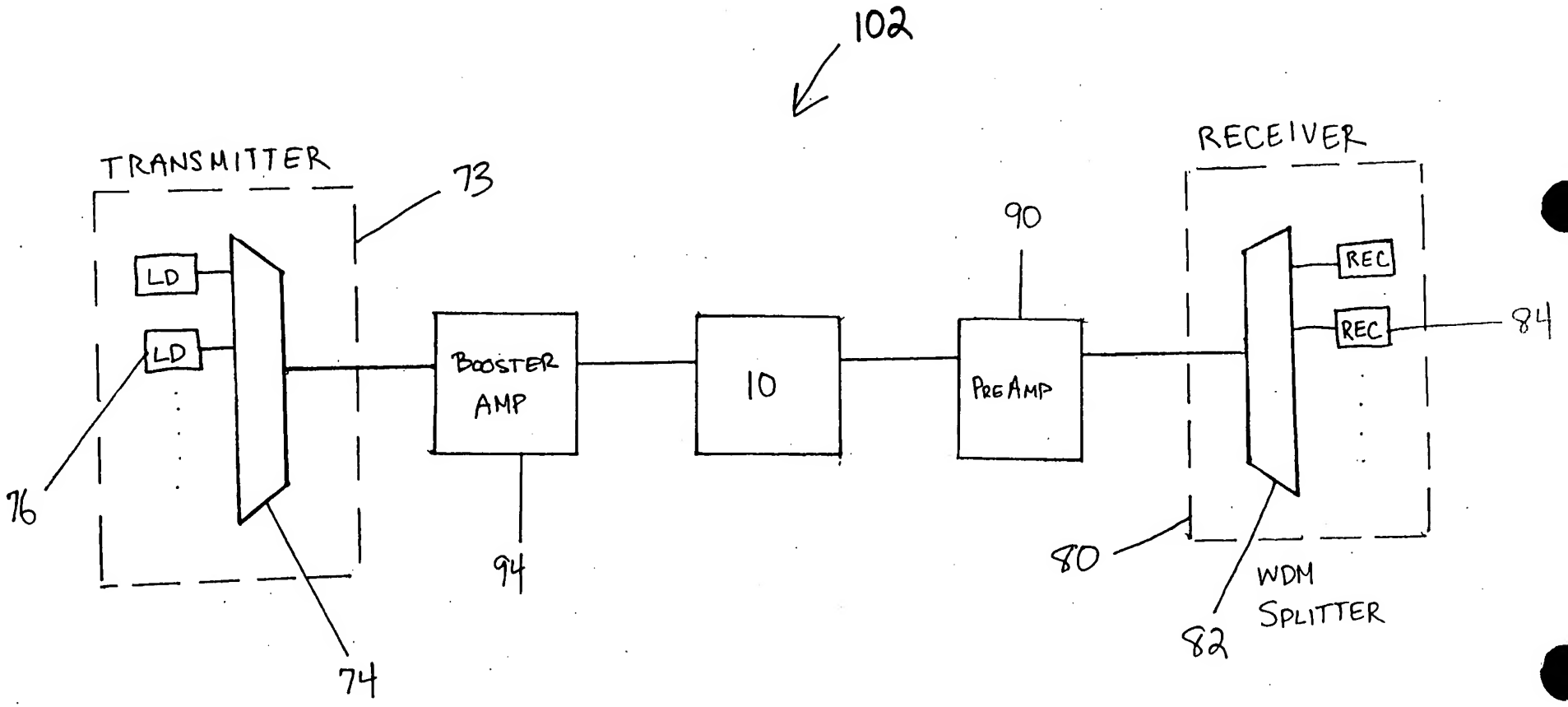


FIG. 19